Installation/Operating Instructions

230V AC Scissor Lift SLX Video Projector Lift by Draper

These Installation/Operating Instructions are available in the official language of the country where you purchase the product. Please contact your distributor to request a copy.

Vous pourriez demander les instructions d'installation et d'opération traduises dans la langue officielle du pays ou vous achetez le produit. Veuillez demander à votre distributeur.

Die Gebrauchsanweisung für Installation und Konstruktion sind in der offiziellen Sprache des Landes, indem Sie das Produkt gekauft haben, vorhanden. Fragen Sie die jeweilige Verkaufs-Abteilung.

⚠Caution:

IMPORTANT SAFETY INSTRUCTIONS

Read all instructions completely before proceeding.

⚠DANGER: To reduce risk of shock:

① Always disconnect power from lift before cleaning.

⚠WARNING–To reduce risk of burns, fires, electric shock or injuries to persons:

② Disconnect power from lift before putting on or taking off parts.

③ Use this lift only for its intended use as described in these instructions. Do not use attachments not recommended by the manufacturer.

④ Never operate this lift if it has a damaged cord or plug. If it is not working properly, call your dealer or the manufacturer for assistance/repair.

⑤ Keep cords away from heated surfaces.

⑥ Never operate lift with air opening blocked. Keep the air openings free of lint, hair, and the like.

⑦ Never drop or insert any object into any opening.

⑧ Do not use outdoors.

⑨ Route cords and cables as shown in the instructions.

⑩ ***⚠WARNING: Rick of Electric Shock—connect this product to a properly grounded electrical supply.***

IMPORTANT INSTALLATION/OPERATING INSTRUCTIONS

⚠WARNING: To prevent injury, this apparatus must be securely attached to the building structure in accordance with the instructions.

⑩ Test lift prior to installation. ***Please Note: Packaging must be removed from lift before testing.***

⑪ Follow instructions carefully. Installation contrary to instructions invalidates warranty.

⑫ Do not obstruct operation of Scissor Lift SLX with fingers or any object. Serious injury or damage could result.

⑬ Lift is intended for use with product weighing not more than 150 kg.

⑭ Scissor Lift SLX is designed to accommodate ceiling suspended equipment. **Equipment should not be allowed to rest on optional ceiling closure during operation (refer to section titled "Installing Projector").**

⑮ Entire bottom of unit must be unobstructed to permit proper operation. Sufficient clearance must be allowed below projector or optional ceiling closure: 305 cm for Model SLX10, 427 cm for Model SLX14, etc.

⑯ Unit must be installed level (use a carpenter's level).

⑰ Unit operates on 230V AC 50 Hz. current. 5.4 amps current draw (2 amps for lift, 3.5 amps for outlet).

⑱ Verify the show position when testing lift. Make required changes by referring to adjustment instructions on page 4 of this document.

⑲ The maintenance/service factory limit setting must not be adjusted to a lower position than the preset factory limit setting. In addition, Draper does not recommend setting show position at the maintenance/service position—for example, if you wish to have 244 cm show position, order a lift with at least a 305 cm maintenance position.

⑳ **When the Scissor Lift SLX is to be installed in "other space used for environmental air" the optional environmental air space housing must be installed per instructions to isolate the lift from the "other space used for environmental air."**

⚠CAUTION: Before servicing unit, disconnect hardwired control and any remote control.

Note: *Unit has been thoroughly inspected and tested at factory and found to be operating properly prior to shipment.*

Electrical Connections

Unit operates on 230V AC, 50 Hz. current. 5.4 amps current draw (2 amps for lift, 3.5 amps for outlet).

Opening the electrical box exposes terminals for field connections. Unit is shipped with internal wiring complete.Wire to connect unit to power supply should be furnished by installer. Connections should be made in accordance with wiring diagram, and wiring should comply with national and local electrical codes. An appropriate disconnect device shall be provided as part of the building installation. All operating switches should be "off" before power is connected.

⚠Caution: Make sure electrical supply has been disconnected before attempting to connect Scissor Lift to electricity.

Scissor Lift should be operated and checked prior to installing projector and/or optional ceiling closure.

Low Voltage Control Switch shown below comes with 22.8 m of non-plenum rated cable and should be plugged in to Control Panel on top frame of lift for control of the "Up" and "Show" positions. Momentary Key Switch shown below comes with 22.8 m of cable and should be plugged in to Control Panel on top frame of lift for control of the "Service" position.

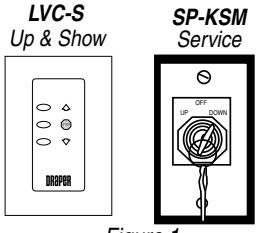


Figure 1

Planning

① Based on screen location and projector specifications, determine proper position for projector installation.

② Confirm that there is adequate space for installation and operation. Minimum clearance above ceiling level varies according to Scissor Lift model, plus height of projector, optional mounting bracket, optional ceiling closure, and optional Environmental Air Space Housing.

③ Arrange to provide service access to the unit.

④ Maximum lifting capacity is 159 kg.

As Soon As Scissor Lift Arrives

① Open carton and inspect for damage.

② Locate the following parts:
- A. The unit itself
- B. Controls
- C. Optional equipment: Environmental Air Space Housing, Universal Projector Mount, closure panel or ceiling finish kit (all ship in separate cartons).

③ Test lift prior to installation. ***Please Note: Packaging must be removed from lift before testing.***

Operation

Before operating or testing the unit, make sure the packaging has been removed from the unit. This can be accomplished by removing the eight screws (four per side) holding the packing frame to the lift. Once the packaging is all removed, operate the lift in the "Up" direction, so the lift's control encoder will recognize it's "home" location. Until you do this, the Down function will not work.

When unit is first operated, be cautious! If unit fails to operate properly, press "off" and recheck electrical connections before proceeding. Cycle unit down and up several times to confirm satisfactory operation. ***You must also do this if the Scissor Lift ever loses or is disconnected from the power.***

⚠Caution: Do not pull on or touch safety belt when unit is in motion. If belt locks, the cables will unspool.

⚠Caution: Obstructing bottom pan may cause cables to unspool.

Standard Single Station Low Voltage Control (See Fig. 1)—One three-button switch with "Up", "Down", and "Off" buttons. Lift starts up or down when appropriate button is pressed, and may be stopped by pressing "Off" button. Factory set limit switches stop lift automatically when projector is in "show" position. One momentary key switch lowers lift from "Show" to "Service" position.

Optional Multiple Station Control—Optional, moves lift from "Stored" to "Show" position only. Each switching station has a three-button switch with "Up", "Down", and "Off" buttons. Lift starts up or down when appropriate button is pressed, and may be stopped by pressing "Off" button. Factory set limit switches stop lift automatically when projector is in "Show" position.

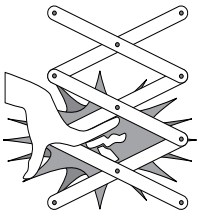
Optional Key Operated Switch—If ordered, the standard LVC-S can be replaced with a second single station, momentary key-operated three position (up/off/down) switch. Multiple Station Control required for this option. Moves lift from "stored" to "show" position only.

Optional Infrared or Radio Frequency Remote Control—If ordered, a three-button transmitter is provided, with "up", "down", and "stop" buttons. Unit starts up or down when appropriate button is pressed, and may be stopped by pressing "off" button. Factory set limit switches stop unit automatically when projector is in "show" position. Only controls "show" and "stored" positions.

Optional RS232 Control—For Serial communication an R2D7 Serial Communications Interface is optionally available.

Low Voltage Trigger—Input provided for Low Voltage Trigger from projector (see diagram on page 4).

⚠ Caution: Beware of pinch points



Please Note: Scissor Lift SLX must be installed in accordance with the requirements of the Local Building Codes, the Canadian Electrical Code (CEC), CAN/CSA C22.1 and the National Electric Code (NEC), NFPA 70, as required. An appropriate disconnect device shall be provided as part of the building installation.

If you encounter any difficulties installing or servicing your Scissor Lift SLX, call your dealer or Draper, Inc. in Spiceland, Indiana, 765-987-7999, or fax 765-987-7142.

411 S. Pearl St., Spiceland, IN 47385 USA ▮ 765-987-7999
www.draperinc.com ▮ fax 765-987-7142

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Hanging Unit

Please note: If using Environmental Air Space Housing option, go to Environmental Air Space Housing instructions on page 7.

The Scissor Lift may be installed in a variety of ways; recessed above the ceiling, or suspended below the ceiling. The lift should be supported by four 12.7 mm threaded mounting rods or bolts with locking nuts. If ceiling recessed, the entire unit (including the projector) should set approximately 38 mm above the finished ceiling in its "stored" position. The threaded rods should pass through the corner mounting flanges and be secured by nuts above and below. The unit should then be guy wired or blocked to prevent swinging.

All installations should observe the following guidelines:

① If installing above a hard ceiling, optional Draper Access Panels are available to allow access to the unit.
② Installer must ensure that all fasteners and supports are of adequate strength to securely support Scissor Lift and projector.
③ Fastening methods must be suitable for mounting surface, and securely anchored so that vibration or abusive pulling on unit will not weaken installation.
④ Unit should be level, with weight shared more or less equally by all four threaded mounting rods.
⑤ Bottom of unit must be unobstructed after installation. Sufficient clearance must be allowed below projector or optional ceiling closure.
⑥ Unit must be secured independent from suspended ceiling and do not use unit to support adjacent ceiling, light fixtures, etc.
⑦ Unit to be installed so when lowered to its lowest point, it is a minimum of 8 feet (2.44 m) above the floor.
⑧ Do not complete the ceiling below unit until electrical connections have been completed and unit has been operated successfully.
⑨ We recommend that safety cables be attached to the Scissor Lift SLX for added security (a sound installation practice with overhead equipment).
⑩ **When the Scissor Lift SLX is to be installed in "other space used for environmental air" the optional Environmental Air Space Housing must be installed per instructions to isolate the lift from the "other space used for environmental air."**

Installing Projector

Generally, the video projector should be suspended from the Projector Pan according to projector manufacturer's instructions and recommended standard ceiling mounting hardware. Projector should be bolted to projector pan as in a normal ceiling mounting. Equipment should not be allowed to rest on optional ceiling closure during operation.

The Scissor Lift SLX has a grounded 230V AC, 50 Hz power cord for projector power supply. The power cord is laced down the back scissor and is "hot" at all times.

Control cables should be laced through our Cable Management System on rear scissor mechanism only. Route the cables and attach with plastic wire ties similar to factory installed power cable. Make sure to use flexible cables. Plenum rated cables are typically too stiff and should not be used. Installer is responsible for ensuring cables do not stretch, kink, or interfere with the scissor mechanism as the unit raises and lowers. This will ensure that cords do not become tangled and damaged during Scissor Lift SLX operation.

Unit and projection system should be operated, checked and adjusted as necessary at this time.

NOTE: *Immediately upon completion of the surrounding ceiling, units should be operated to confirm that optional ceiling closure panel stops just short of touching ceiling in closed position.*

⚠***Warning:*** *Keep fingers and other objects away from automatic ceiling closure and scissor mechanisms when unit is operating. Serious injury or damage could result.*

Adjusting for Level or Center of Gravity

Preferred Method—Adjusting Projector Pan

The Projector Pan can be moved forward or back.

① ***Make sure Bottom Pan is supported.***
② Remove the Lifting Cable Bar (see Fig. 2).
③ Remove screws holding Projector Pan on Bottom Pan (see Fig. 2).
④ Move Bottom Pan forward or back.
⑤ Replace screws.
⑥ Replace Lifting Cable Bar.

Secondary Method—Adjusting Lifting Cable Bar (if above does not work)

Run the unit to its "Service" position and make sure pan is level. ***Try and set so that pan is not more than 19 mm out of level. However, the pan does not have to be perfectly level, as long as the positioning is consistent and repeatable in "Show" and "Closed" positions.***

① Make sure Bottom Pan is supported.
② Remove screws holding Lifting Cable Bar to the Bottom Pan (see Fig. 2).
③ Move Lifting Cable Bar forward or back (see Fig. 2).
④ Replace screws.
⑤ Check level again. If still not level, repeat.

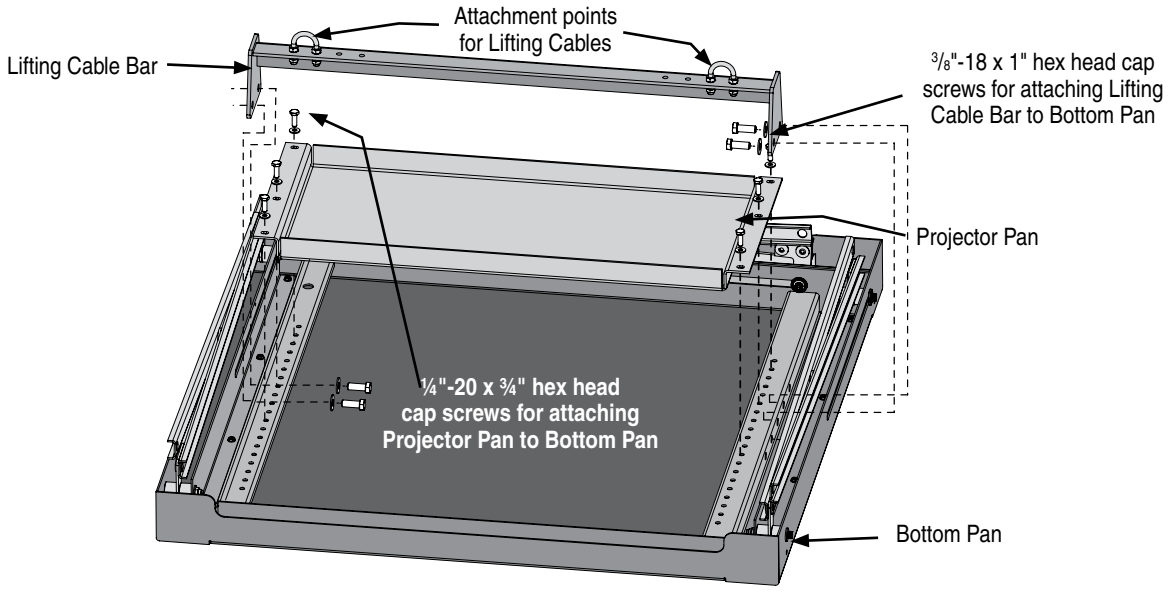

Attachment points for Lifting Cables
Lifting Cable Bar
3/8"-18 x 1" hex head cap screws for attaching Lifting Cable Bar to Bottom Pan
Projector Pan
1/4"-20 x 3/4" hex head cap screws for attaching Projector Pan to Bottom Pan
Bottom Pan

Figure 2

Installing Optional Universal Projector Mount

If you ordered the unit with optional Universal Projector Mount pre-installed, disregard these instructions.

If you did not order the mount pre-installed, you will need to install a new Projector Pan, which includes the Universal Projector Mount's rectangular plate.

① Lower unit until the Bottom Pan is resting on a tabletop or other stable and sturdy surface.
② Remove Lifting Cable Bar from Bottom Pan (see Fig. 2).
③ Remove bolts holding Projector Pan to Bottom Pan (see Fig. 2).
④ Remove Projector Pan and set aside.
⑤ Place new Projector Pan with Universal Mount into place.
⑥ Re-attach Projector Pan to Bottom Pan.
⑦ Re-attach Lifting Cable Bar to Bottom Pan.

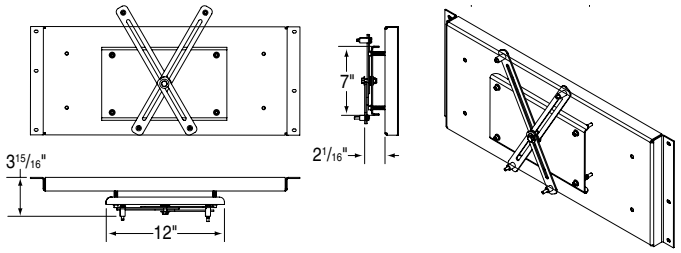


Figure 3

Installing Projector Using Universal Projector Mount

(Maximum capacity 11.7 kg)

The Universal Projector Mount includes:
-2 x long arms
-4 x short arms
-4 x M3, 4 x M4, 4 x M5 and 4 x M6 mounting bolts (30 mm in length)
-4 spacers (½" [13 mm], 5/8" [16 mm], ¾" [19 mm], 7/8" [22 mm])

① Determine which size mounting bolts suit your projector, and set others aside. They are no longer required. If your projector has only three mounting holes, set aside one of the mounting arms (see Fig. 3).
② Attach the appropriate mounting arms to the rectangular plate via center bolt. Spread out the arms so each end is over one of the mounting holes.
③ Connect projector mounting arms.
④ Tighten the mounting bolts.
⑤ Use the ¼" (6.35 mm)-20 bolts and springs which hold the rectangular plate to the bottom pan to adjust roll and tilt (the springs will ensure that the projector is held still during motion). The center 5/16" (8 mm) bolt provides Yaw adjustment (see Fig. 4).

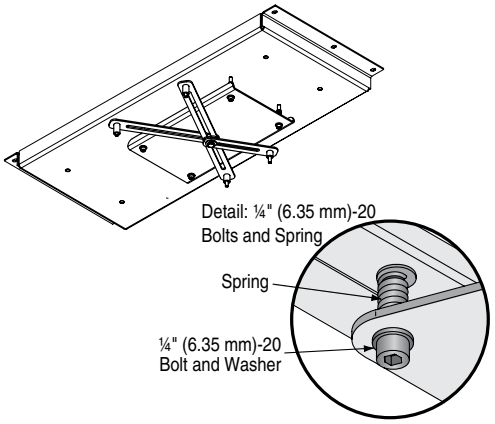


Figure 4

Installing Optional Ceiling Closure

If your Scissor Lift SLX is equipped with optional ceiling closure, it can be used as is, or in conjunction with a square of existing ceiling tile (see Fig. 5).

① If installing with ceiling tile, you may need to cut tile so that its overall dimensions are the same as (or slightly less than) the closure panel. Place tile into trim frame. Lay closure panel on top (back side) of ceiling tile, and tighten screws to hold in place.
② Attach provided angle brackets to side of Bottom Panel of Scissor Lift SLX.
③ Attach 8 mm threaded rods to angle bracket.
④ Run unit "up" until bottom pan stops at highest position. Mark position on 8 mm rods even with ceiling level and cut to length (remove from pan if convenient).
⑤ Run unit "down" until bottom pan stops at "show" position.
⑥ Attach closure to lower end of 5/16" rods by slipping into four corner slots and secure with nuts above and below slots.

⚠***Caution: Make sure nuts are completely tightened.***

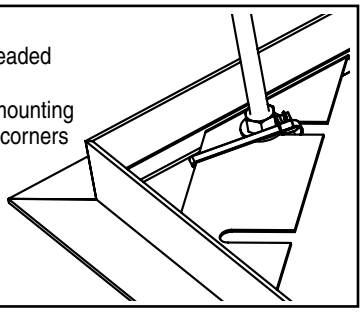
⑦ Run unit "up" again to highest position. Measure distance by which panel fails to reach required "closed" height for surrounding ceiling.
⑧ Run unit "down" then re-adjust mounting of 8 mm rods in traveling grid to raise panel required distance.
⑨ Test unit operation to confirm that panel will stop in closed position just before touching ceiling.

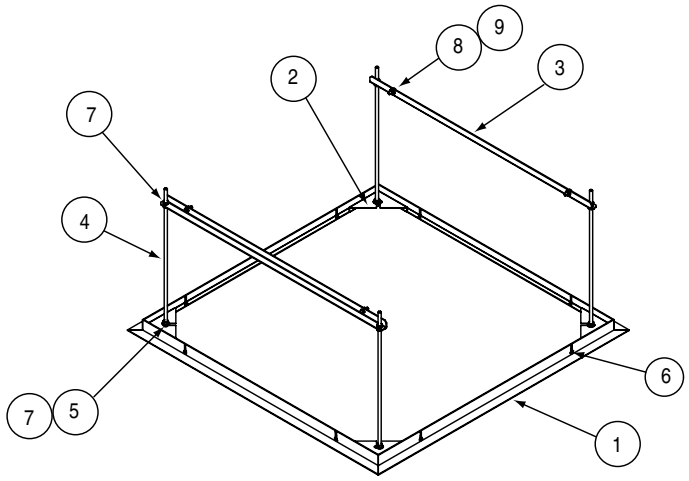
⚠***Caution: DO NOT hang from, "ride" or pull down on the unit. This could create a failure and cause damage and/or injury.***
PLEASE NOTE: Immediately upon completion of the surrounding ceiling, unit should be operated to confirm that optional ceiling closure panel by Draper or by others stops 1/8" short of touching ceiling in closed position. If closure panel touches, the motor may continue operating after the lift is closed. If it continues to cycle once the lift is closed, a motor failure may occur.

For Additional Safety:

① Be sure the nuts that attach the threaded rods to the closure panel are tight.
② Wrap a plastic wire tie around the mounting tab and the threaded rod at all four corners of the closure panel (see drawing).

Please Note: Do NOT use a paper-covered or similar wire tie—use only plastic wire ties for maximum safety.





Item	Qty	Part Number	Description
①	1	C028.546	Frame, SLX Closure Trim
②	1	C044.181.07SA	Panel, SLX Assembled Closure
③	2	C002.845.07SA	Bracket, SLX Closure
④	4	C077.035.49	Rod 3/8"-16 x 17 7/8" L Threaded , Zinc
⑤	8	C013.050	Washer .375 I.D. x .875" O.D. x .064" TK GRD 2 Zinc Flat
⑥	8	C020.082	Screw, 10-16 X ½" 6 Lobe Truss Head AB E-White
⑦	16	C018.027	Nut, 3/8"-16 Hex GRD 2 NSF
⑧	4	C020.322	Screw, 5/16"-18 x ¾" Long Grade 5 HH Zinc
⑨	4	C018.045	Nut, 5/16"-18 Zinc Hex KEPS

Figure 5

Installing Optional Ceiling Trim Kit

The Scissor Lift SLX is available with a Ceiling Trim Kit, which consists of the lower section of the Environmental Air Space Housing and the optional closure panel (see Fig. 6).

①Install Scissor Lift SLX as previously described in these instructions.
②Install bottom section of Environmental Air Space Housing and Trim Ring in opening. This can be accomplished by suspending with wire, or by mounting directly to the ceiling joists (if space permits).
③Install projector and attach optional ceiling closure to Scissor Lift SLX, according to the instructions included in this document.

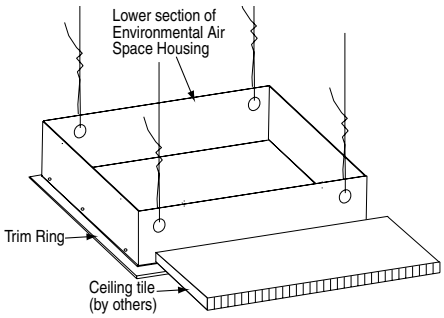


Figure 6

Scissor Lift SLX Inspection and Maintenance

Draper recommends inspecting the Scissor Lift SLX at least annually or every 300 cycles—whichever comes first.

A recommended maintenance schedule includes:
-Cables: Check for fraying.
-Drive Chain: Check for rust, breaks, secure attachment.
-Fasteners along scissor arm assemblies: Make sure they are not loose. If any are loose, hand tighten the nuts. *(Please Note: there is no need to tighten nut in the top scissor which slides back and forth in the side slot in the lift. Tightening this fasteners assembly will cause the unit to lock up and lead to damage to the unit.)*
-Closure: Make sure threaded rod remains seated firmly in the closure panel corners, and that nuts remain tight. If they are loose, tighten them.

Connecting Controls to Data Cable Splitter Board

Controls plug into the Data Cable Splitter Board, which is located on the Top Frame on the front side of the lift, using RJ14 connectors.

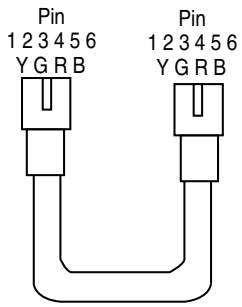
For IR or RF Remote Control, use data cable with RJ14 connectors on both ends.

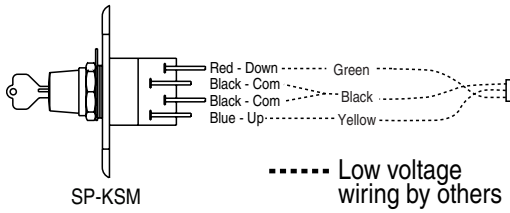
For serial control of "Show" position, use data cable with RJ14 connectors on both ends and an R2D7 Serial Control Interface. Plug into the "RP/RQ" input.

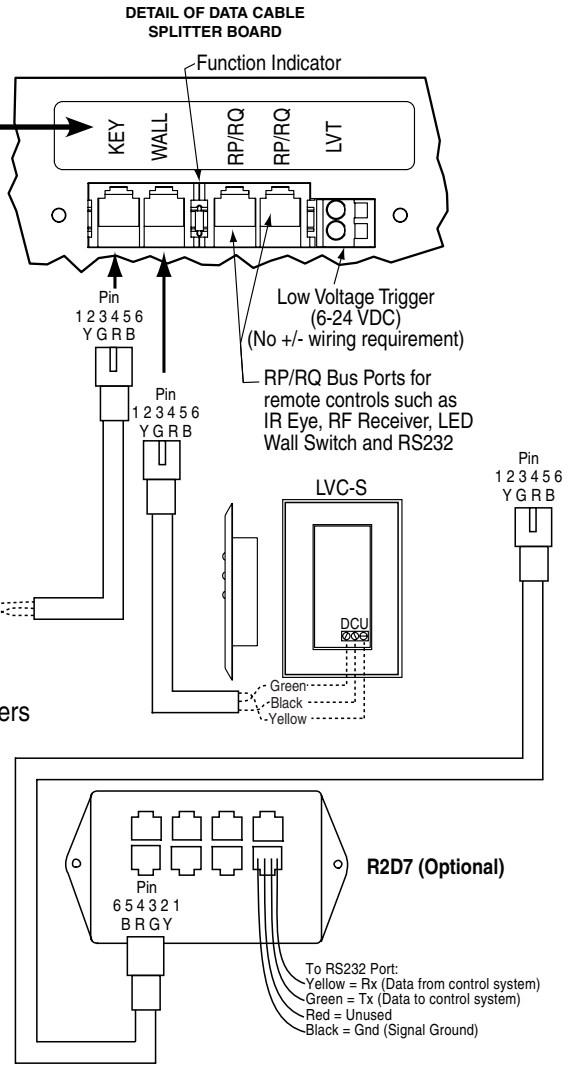
Any control, including automated dry contact systems, being connected to the wall switch input MUST send a momentary signal.

Please Note:

Data cable connections must be made using ***electrically straight*** 4-conductor modular cable (RJ14). If making your own cables, this means colors do not cross over: blue leads to blue, green to green, etc. (see diagram below).







CLEARING THE SHOW POSITION AT CURRENT SHOW POSITION:

① Move lift to the show position.
② While lift is at the show position press and hold the Key Up toggle switch and release once the Lift begins moving upward.
③ The show position is now cleared and ready for a new show position to be set.

CLEARING THE SHOW POSITION AT THE MAINTENANCE POSITION:

① Move lift to the maintenance position.
② While lift is at the maintenance position press and hold the Key Down toggle switch and release once the Lift begins moving upward.
③ The show position is now cleared and ready for a new show position to be set.

PLEASE NOTE: At this point the Key Switch will not operate until the new "Show Position" has been set. Also the 3-Button Wall Switch changes into a maintain, push and hold type button, for continuous movement. This allows for easy setting of new "Show Position")

PROCEDURE FOR SETTING SHOW POSITION:

① Now that the show position has been cleared, use wall switch up and down buttons to get lift into desired show position.
② While lift is at desired show position, press and hold the Key Down toggle switch until lift begins to move upward. Lift will begin a calibration cycle where it will move upward for two seconds, stop then move down for one second and then the Lift will return to the desired show position.

Optional Delay Feature

① When the Optional Delay Feature is installed the Delay Switch must be in the "Delay On" position for normal operation.
② If the Optional Delay Feature is installed and the "Show Position" requires adjusting, then the "Delay Switch" must be switched to **OFF** while adjusting the show position.

PLEASE NOTE: If the Scissor Lift loses power, the* DOWN *function will not work until you operate the lift in the* UP *direction using the wall switch. This allows the lift's control encoder to recognize it's "home" location.

⚠ ***CAUTION:*** *Be sure all switches are in* **OFF** *position before adjusting limit switch. Always be prepared to shut lift off manually when new adjustment is being tested. Please refer to wiring diagram.*

Adjusting Limit Switches

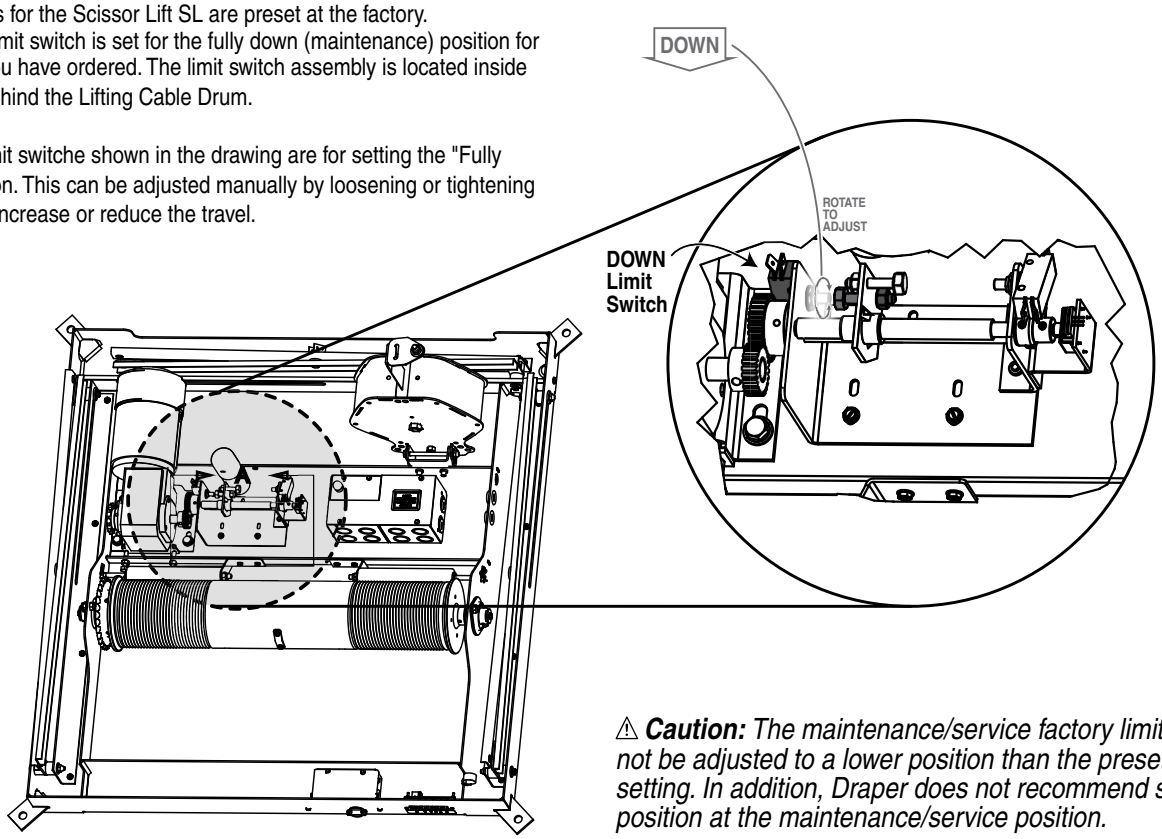
PLEASE NOTE:

Changing the fully open or fully closed position will reset the electronic controls and cuase the lift to operate improperly. **Please call Draper before attempting these adjustments.**

Adjusting FULLY DOWN position

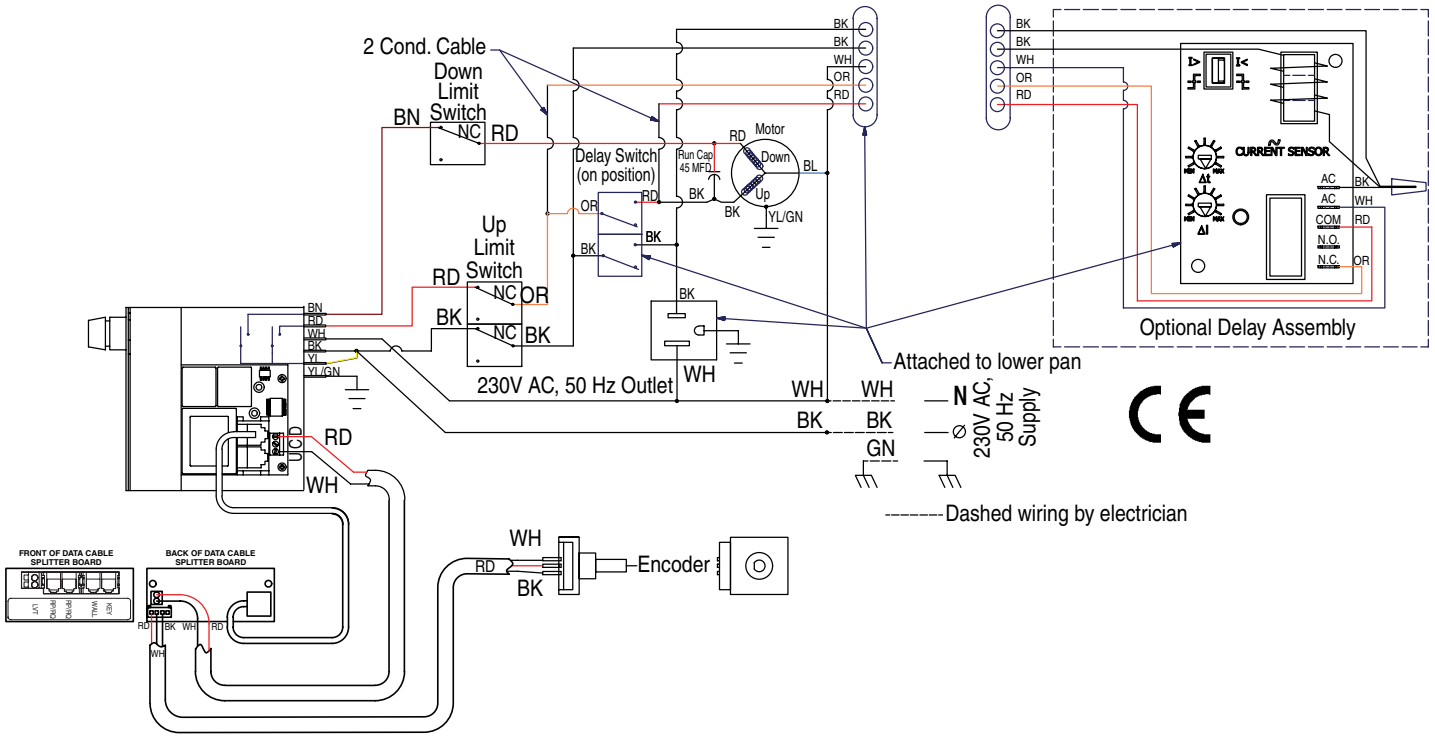
Limit switches for the Scissor Lift SL are preset at the factory.
The **DOWN** limit switch is set for the fully down (maintenance) position for the size lift you have ordered. The limit switch assembly is located inside the lift and behind the Lifting Cable Drum.

The Down limit switche shown in the drawing are for setting the "Fully Down" position. This can be adjusted manually by loosening or tightening the screw to increase or reduce the travel.



⚠ ***Caution:*** *The maintenance/service factory limit setting must not be adjusted to a lower position than the preset factory limit setting. In addition, Draper does not recommend setting show position at the maintenance/service position.*

Wiring Schematic



Scissor Lift SLX Dimensions

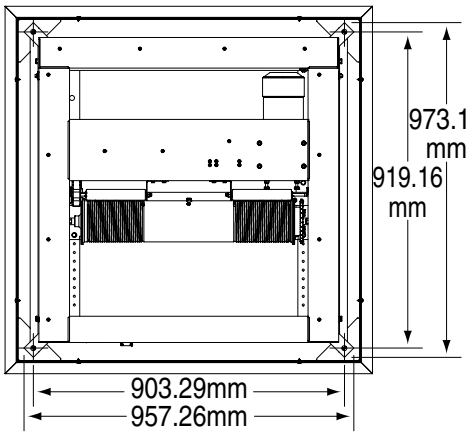
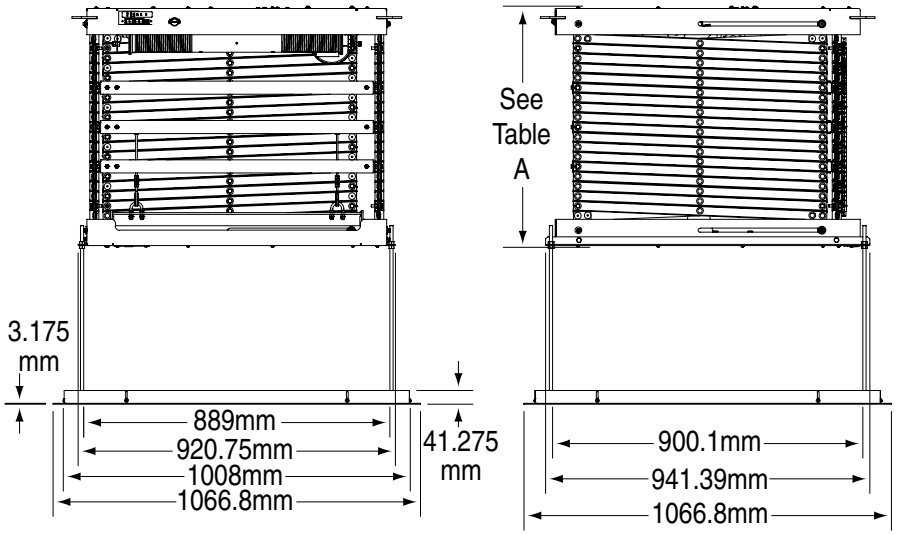
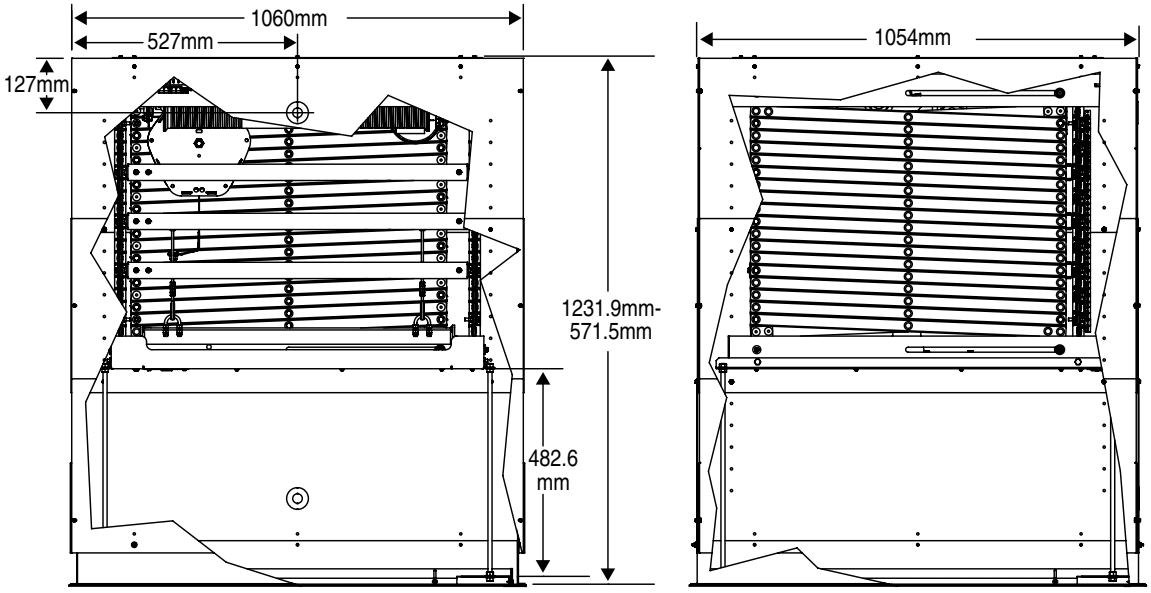


Table A

Model	Closed Height	Extended Height
SLX10	36cm	232cm
SLX14	42cm	432cm
SLX17	47cm	538cm
SLX21	53cm	648cm
SLX24	60cm	754cm
SLX28	65cm	866cm



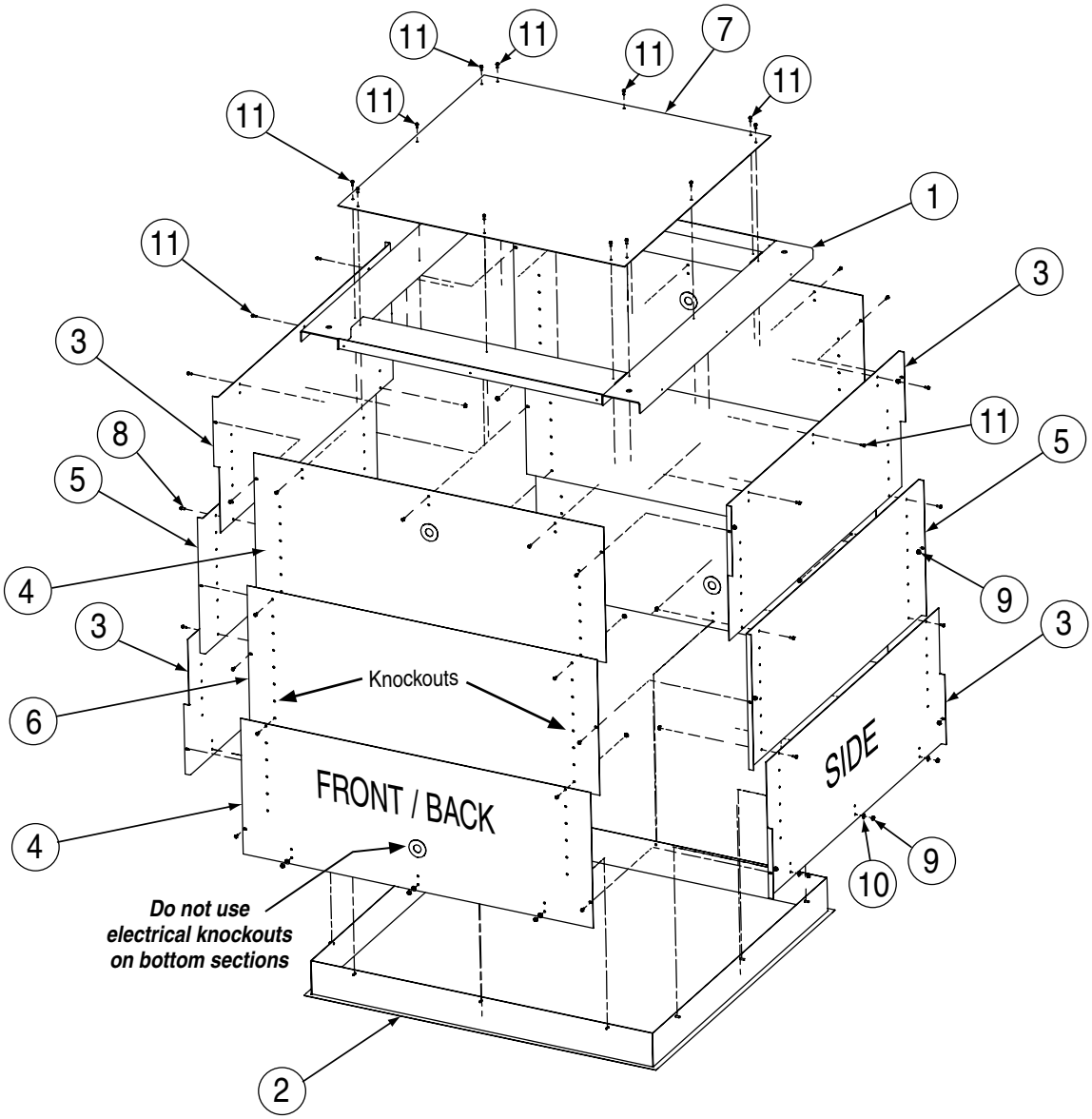


Front/Back View **Side View**

Installing Optional Environmental Air Space Housing

The Environmental Air Space Housing is shipped in pieces, and must be assembled by the installer. The height of the Environmental Air Space Housing is set by punching out the knockouts at the desired locations then using screws to connect in side panels. It is recommended that an access panel be installed in the ceiling to allow future access. The optional Environmental Air Space Housing must be installed per instructions to isolate the lift from the "other space used for environmental air."

① Attach Environmental Air Space Housing top frame to top of Scissor Lift SLX with bolts provided.
② Install top panel to Environmental Air Space Housing frame.
③ Attach assembly to overhead structure. Allow clearance between Environmental Air Space Housing top and structure for ease of future access.
④ Install side and end panels, and trim frame.



Item	Qty	Part Number	Description
①	1	C028.544.02SA	Frame, SLX Plenum
②	1	C028.545.07SA	Frame, SLX Trim Ring
③	4	C044.178SA	Panel, SLX Plenum Side
④	4	C044.180SA	Panel, SLX Plenum End
⑤	2	C044.179SA	Panel, SLX Middle End
⑥	2	C044.177SA	Panel, SLX Plenum Middle Side
⑦	1	C095.123SA	Cover, SLX Plenum
⑧	28	C020.325	Screw, 8-32 x 3/8" Type 1 HWH
⑨	40	C018.051	Nut #8-32 Zinc Hex KEPS
⑩	12	C013.070	Washer, .188 I.D. x .5 O.D. x .07" TK Nylon Flat
⑪	24	C020.112	Screw, 8-32 x 3/8" Type F HWH

⚠Caution: Be careful when handling Environmental Air Space Housing Panels. The panels could have sharp edges.